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Empiricism—Rational Practice—Practice Under Guidance of Law.

A Lecture to Medical Students.

BY

CHARLES S. MACK, M.D.,

Ann Arbor, Mich.



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EMPIRICISM—RATIONAL PRACTICE—PRACTICE UNDER GUIDANCE OF LAW.

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A NY given practice with a drug we may, with regard to the dominant character of that practice, classify under one or another of three headings, viz.: Empiricism, rational practice, practice under guidance of law. I say *with regard to the dominant character of the practice*, for (and to this thought we shall recur) it does not often occur—indeed, I think it never occurs—that a given practice is wholly empirical, wholly rational, or wholly under guidance of law. I wish to lay before you these three methods of practice, in each of which you will, I believe, find more or less that is good.

EMPIRICISM.—For present purposes I define empiricism as the practice in which one gives a particular drug for the *sole* reason that he believes it (or a drug more or less similar to it) to have done good in previous cases more or less similar to a present one. Please observe that empiricism thus defined does *not* include the haphazard giving of drugs without *à posteriori* reason. To assert that no good had ever come from haphazard practice in the past would, perhaps, be incorrect. For aught I know the initial practice with any given drug among savage people is haphazard, and we all know that some valued practices with drugs are simply in imitation of practices with them among



savage people.¹ But I would urge that in civilized lands medical science and medical art have at this day reached a stage of development at which we may well dispense with haphazard practice. Consider, for a moment, that for any given haphazard practice there is no *particular* reason either *à priori* or *à posteriori*; and you cannot, I think, fail to agree with me that this methodless method of practice has no claims which the medical world to-day can with propriety allow. In such practice any one substance, whether poisonous or inert and whatever its peculiar properties, would be as eligible as any other substance, whatever the disease affecting a given patient, and whatever the condition in which that patient might be. Do not imagine that the complete abolition of haphazard practice would necessarily prevent the accumulation of new material as a basis for legitimate empiricism based upon *à posteriori* reason, for in our attempts at rational practice and practice under law we may meet with various practices which we shall continue for the *à posteriori* reason that they seem useful, after it shall have become evident that we were mistaken in regard to some of the data by which we were in the first instance led to adopt them—which data being found incorrect, we can no longer continue the practices as rational or as under guidance of law.

The empiricism which we shall consider is, then, that practice in which we give a particular drug for the *sole* reason that we believe it (or a drug more or less similar to it) to have done good in previous cases more or less similar to a present one. Before leaving the subject of empiricism I shall assign reasons for believing that the time will never come when the best physicians will entirely discard empirical practice, but I wish first to impress upon your minds the fact that empiricism is essentially feeble. Its inherent feebleness is due to the fact that empiricism utterly ignores any proper distinction between the *science* of drugs² and the *art* (which is therapeutics) of using drugs. That you may clearly understand what this distinction is, I quote an aphorism from Whewell's *Novum Organon Renovatum*.³

¹ It might, by the way, be queried whether, in an initial practice, the savage was not guided by some faculty analogous to instinct.

² Some substances are medicine by reason of physical properties—some, by reason of chemical properties—some, by reason of dynamic properties. The pure science of drugs includes, therefore, facts of physics, facts of chemistry, and facts of pathogenesis. *Materia medica pura* is only that part of the pure science of drugs which deals with their unmodified or pure effects as pathogenetic agents in man.

³ Third edition, p. 129.

"*Art and Science differ. The object of Science is Knowledge ; the objects of Art are Works. In Art, truth is a means to an end ; in Science, it is the only end. Hence the Practical Arts are not to be classed among the Sciences.*" The same thought which Whewell thus expresses has been more concisely expressed as follows : "*In science, scimus ut sciamus ; in art, scimus ut producamus.*"⁴

Let us for a moment consider some details presented by a slight expansion of the theme that empiricism is essentially weak in that it ignores any proper distinction between the science of drugs and the art of therapy.

1st. While it is perfectly legitimate in the practice of medicine to incidentally make observations for the advancement of medical science, it is never legitimate to make the advancement of science the main object of medical practice. That main object should always be to benefit the patient. The main objects of medical practice are (to use Whewell's word) Works.⁵ Empiricism, in that it is based solely upon experience in previous practice, has in its foundation no pure science of drugs, the only immediate object of which is knowledge.⁶

2d. In lieu of such facts as only the pure science of drugs can afford, empiricism uses as foundation-material what it first used as a part of its superstructure. *That much* of its foundation to-day was its superstructure yesterday, and its superstructure to-day will to-morrow be *that much* of its foundation. In this foundation there is pure science of disease, but no pure science of drugs.

3d. While empiricism does not look to pure science of drugs for materials to use in constructing a foundation upon which afterwards to erect, as a superstructure, the art of medical practice, she may, and to some extent does, look to pure science of drugs for materials which she would thrust in as underpinning for a superstructure which she has approved. Conspicuous examples of her having done this are to be found in the history of mercury and quinine as medicines.

⁴ Karslake, as quoted under *Science* in Webster's Dictionary.

⁵ "The physician's highest and *only* calling is to restore health to the sick, which is called Healing." Opening words of Hahnemann's *Organon*: Dr. C. Wesselhoeft's translation.

⁶ Though it is characteristic of empiricism to ignore any pure science of *drugs* in a foundation for practice, it is not true that empiricism ignores any pure science of *disease*. In haphazard empiricism the science of disease (beyond the recognition of disease in general as distinguished from health) might be ignored ; but to legitimate empiricism something of the pure science of disease is essential, for legitimate empiricism involves a recognition of similarity between two or more disease conditions.

For at least several hundred years either of these has been empirically used—the one being given to syphilitic patients and the other to malarial patients; and to this day empiricism, believing (correctly, I think) that these drugs are useful for these patients, is asking the pure science of drugs why they are useful.

Even from that point at which it appears to best advantage, the house which empiricism builds is a very ramshackle affair.

4th. *Theory and practice* is a phrase common in the medical world. Empiricism seems to have (properly speaking) no theory. In defining *theory* Webster says: "The science distinguished from the art; as, the *theory* and practice of medicine." Empiricism has no science of drugs distinguished from the art of using them: it is all practice and no theory; or, for a given empirical practice some theory may be offered, but only such as has been constructed after the practice has been accepted. Cart before horse.

Having endeavored to show you that empiricism is essentially feeble, and why it is so, I now ask you not to hastily conclude that you will make no use of empirical practice. We shall presently see that progress in sciences must precede progress either in rational practice, or in practice under guidance of law. Now, as our knowledge of a science can never be complete, there always may arise cases in which we have not all the data necessary for a rational practice or for practice under law, and in which a resort to empiricism is justifiable. "So many things are unsettled which it is of the first importance to settle, —and, pending their settlement, we will do as we do."¹ But we may hope that, as our knowledge of medical science increases, empiricism receding will more and more give place to rational practice, and to practice under guidance of law.

RATIONAL PRACTICE.²—For present purposes I define rational practice as that practice in which one selects and uses a particular drug, for the reason that—in view of certain disease effects present, or proximate causes of those effects (which effects or causes he knows as scientific fact) and of certain physical, chemical, or pathogenetic properties of that drug (which properties he knows as

¹ Emerson's essay, *Experience*.

² It seems hardly necessary to explain that a technical use of the term, *rational practice*, does not do away with the ordinary meaning of *rational* or of *practice*. I have given reasons for believing that it is rational to, on occasion, resort to empiricism, and I think it is preëminently rational to practice homœopathy, but neither empiricism nor homœopathy is, technically, rational practice as here defined.

scientific fact)—he deduces from an *à priori* premise that the patient will be benefited by having produced in him one or more of the pathogenetic effects of the drug, or by having produced in his tissues, secretions or excretions one or more effects of the drug as a physical or chemical agent; or by having the drug brought to act as a physical, chemical or dynamic agent upon some proximate cause of disease.⁹

In passing I remark that in rational practice it is never amiss to be on one's guard against producing, beside the intended drug effect or effects, other and harmful drug effects.

Let us now consider some of the particular features of rational practice, and contrast them with features of empiricism.

1st. For one feature and contrast see foot-note 9.

2d. Rational practice presupposes a knowledge of pure science both of disease and of drugs. Legitimate empiricism ignores the pure science of drugs.

3d. Any given rational practice necessarily involves a definite conception of the *immediate* end sought in the practice. A given empirical practice may either have or not have in view an *immediate* end definitely conceived. The mere fact that in previous practice patients have become better after taking a particular drug is sufficient ground for the empirical administration of that drug to patients diseased in a way more or less similar to that in which the former patients were diseased,—the betterment recognized may either be an *immediate* effect or be a *remote* effect of the drug used. In rational practice one can not aim at a remote end excepting through an *immediate* end at which he definitely aims.

4th. Rational practice is vastly more worthy of cultivation than is empiricism. The essential superiority of rational practice over empiricism is, I take it, largely due to the fact that rational practice (*as a whole*) has the benefit of man's faculty of imagination and faculty for logical deduction (each of which faculties is, perhaps, one of the marks distinguishing man from brute), while empiricism has

⁹ As I said at the beginning of this lecture, and shall again say at its close, a given practice may be not wholly rational or wholly empirical. Experience in practice may afford an *à posteriori* basis for a practice originally based upon an *à priori* reason—for, for instance, various practices with anæsthetics, anodynes or mydriatics. In my definition the *à priori* element is recognized as a characteristic of rational practice. The *à priori* premise is more or less general, and we would by *deduction* arrive at a particular application of it. Contrast this with the fact that to any given empirical practice the premise is a *à posteriori* and the reasoning process *inductive*.

not that benefit.¹⁰ I speak of this benefit as accruing not to every particular rational practice, but to rational practice *as a whole*. To a particular rational practice the imagination may be engaged with true ideas or with false, and the deduction may be logical or illogical. A particular rational practice based upon a logical deduction from a premise in itself true may fail of effecting the ultimate end proposed, by reason of some circumstances which the premise did not take into account. A particular rational practice not only may fail of effecting the ultimate end proposed, but may do harm—even great harm; it may even prove fatal. It is exceedingly important to remember this in those instances where a particular rational practice has as its immediate end the production in the patient of pathogenetic (sometimes called *physiological*) effects of a drug.¹¹ While, then, I speak of rational practice as very decidedly worthy of cultivation, I add that one should never cultivate rational practice excepting with caution. Caution is agreeable to the theory of rational practice, and in the history of rational practice there is ample record of the havoc one may make when he is not cautious.

While speaking of empiricism I said that in particular cases we may be without the scientific data necessary to a rational practice. The limitation to which rational practice is in a particular instance subjected by such insufficiency of scientific data may be incidental and temporary. I shall wish your particular attention to one respect in which rational practice in general is *essentially limited*, but of this I can speak better when we shall have attended somewhat to the subject of our next heading, viz.:

PRACTICE UNDER GUIDANCE OF LAW.—A law of nature is a general principle to which there is no exception whatever. Regarded from

¹⁰ "Lastly, physical Investigation more than anything besides helps to teach us the actual value and right use of the imagination—of that wondrous faculty, which, left to ramble uncontrolled, leads us astray into a wilderness of perplexities and errors, a land of mists and shadows; but which properly controlled by experience and reflection, becomes the noblest attribute of man: the source of poetic genius, the instrument of discovery in Science, without the aid of which Newton would never have invented fluxions, nor Davy have decomposed the earths and alkalies, nor would Columbus have found another continent." Address to the Royal Society by its President, Sir Benjamin Brodie, November 30, 1859, as quoted by Tyndall in a discourse before the British Association, *On the Scientific Use of the Imagination*.

"If experience is not directed by theory, it is blind." Bacon as quoted by Headland *On the Action of Medicine*, ninth American edition, p. 18.

¹¹ Calling pathogenetic effects *physiological effects* seems to suggest and foster a false notion. The processes of which physiology, as distinguished from pathology, is the science are normal; pathogenetic effects are *not* normal.

the standpoint of inductive science, a law of nature is an ultimate fact. Inductive science simply recognizes, or else fails to recognize, a given law as a fact: noting a given law, it does not attempt to explain why that law is such as it is.

Ringer has suggested¹² that it may be a law "that acids, applied topically, check the production of acid secretions from glands, while they increase the flow of alkaline secretions; the very reverse being the case with alkalies, for alkalies applied to the orifices of glands with acid secretions increase their secreting power; while alkalies applied in a corresponding way to glands with alkaline secretions lessen or check this secretion." If this is a law, it is one by which, it seems, we could be guided in only an exceedingly small proportion of the instances in which medical aid is sought. Furthermore, it does not appear that this purports to be a law of *therapeutics* as distinguished from *hygiene*.

Contraria contrariis opponenda may be the law of some kind of palliation not yet accurately defined. When we come to discuss the claim of *similia* we shall have something to say incidentally regarding *contraria*, and shall see that there are comparatively few disease effects of which opposite disease effects are predicable. Furthermore, I shall express my opinion that the direct resultant of two positive abnormal forces, one of which is a disease force and the other a pathogenetic force in a drug, is *never* normal. There is a proverb that two wrongs don't make a right.

I have thought it well to mention, in passing, this (perhaps) law regarding acids and alkalies, which, let me repeat, seems to assert no claim as a law of *therapeutics* as distinguished from *hygiene*; and the (perhaps) law of contraries, of which we shall have occasion to speak in another lecture.¹³ Whatever laws of therapeutics there may be, I shall in a subsequent lecture present to you some of my reasons for believing that *similia similibus curantur* is the only possible law of that cure which I define as such modification of the quality of vital processes and their effects that, whereas these processes and effects were abnormal, they shall become normal (or approximately so), and that as the direct result (not an indirect) of the medicine used.

¹² Hand-book of Therapeutics, eleventh edition, p. 158.

¹³ The matter in a subsequent lecture here and elsewhere spoken of is substantially the same as that in two lectures upon *Homœopathy the only System of Curative Medicine* in a little book entitled *Philosophy in Homœopathy*, published for me by Messrs. Gross and Delbridge, 48 Madison street, Chicago.

This is the place at which I shall point out one respect in which rational practice is *essentially limited*. Rational practice is incompetent to effect the cure which I have just defined, for an essential to that cure is a definite modification of vital processes, and these processes *per se* are unknowable to inductive science. These processes are knowable to such science only in effects, and a datum necessary to such cure is a law of nature stating the relation between disease effects and the pathogenetic effects of a curative drug. This matter we shall discuss in detail in a subsequent lecture.

If you will study the definition I have given of that cure at which the practice of homœopathy aims, you may, I think, conclude that, in itself considered, this is the best cure conceivable as an object of practice with drugs.¹⁴ You may care to sometimes bring that conclusion to bear upon a question often raised, viz.: Why is it that physicians who do not practice homœopathy only, but gladly adopt a given rational practice which seems to them useful, and on occasion resort to empiricism, nevertheless identify themselves by name with the particular principle upon which the practice of homœopathy is based?

As *similia* is the only definitely stated principle which I accept as a law of *therapeutics* as distinguished from *hygiene*, I shall devote my further remarks under the present heading to some features of practice under guidance of *similia*, comparing them with features of empiricism and with features of rational practice.

1st. The practice of homœopathy presupposes a knowledge of the pure science of disease *as known in effects*; rational practice *as a whole* presupposes knowledge of a *part* of this science, and also a knowledge of proximate causes of disease. The practice of homœopathy presupposes a knowledge of the pure science of drugs *only as pathogenetic agents in man, i. e.*, a knowledge of *Materia Medica Pura*;

¹⁴What is here spoken of as *in itself considered, the best cure conceivable*, is identical with what in lectures referred to in note 13 is recognized as *the only cure possible*. It seems to simplify matters to call this alone *cure* as distinguished from results of hygienic measures and of prophylaxis, and from various kinds of palliation. Accepting the broadest definition of *cure*, it is curative to secure quiet for your patient by scattering tan-bark on the cobble-stones in the street, or by stopping his neighbor's boy from playing on a drum—it is curative to bathe his forehead, smooth his pillow, or direct his diet—it may be curative to benumb him with morphine, or to kill germs. Under the broadest definition of *cure*, any measure useful to your patient as a patient is curative. To me it seems obvious that the most intelligent consideration of homœopathy's claim is possible, only when the cure at which the practice of homœopathy aims is accurately defined.

rational practice *as a whole* presupposes a *part* of the pure science of drugs as pathogenetic agents in man, and also the pure science of drugs as medicines by reason of physical or chemical properties, and as dynamic poisons to germs, etc. Legitimate empiricism ignores the pure science of drugs, but not of disease.

It at present seems probable that in the science of disease *as known in effects* are indefinitely many facts, a knowledge of which is useful in the practice of homœopathy, but not in rational practice. When, for instance, one administers morphine as an anodyne, various facts regarding pain (*e. g.*, the part to which it is referred, the character of it, circumstances which aggravate and those which relieve) may be insignificant; but in the theory of homœopathy no detail of disease effects is insignificant. It seems probable, too, that indefinitely many facts of *Materia Medica Pura* available in the practice of homœopathy are not available in rational practice *excepting as warnings not to give too much of the particular poison used*. Of what use to rational practice is the fact that certain drugs produce inflammation in the kidneys, and give rise to casts, albumen and blood in the urine? Surely no one wants to produce these effects in his patient. In the theory of homœopathy no objective or subjective effect of a drug *as a pathogenetic agent in man* is without value as pointing to curative practices.

2d. In the practice of homœopathy, that similars cure is a general premise from which we would deduce what particular drug (or drugs) will cure in a particular instance.¹⁵ In rational practice, too, the reasoning process in any given case is deductive; but in rational practice the premise may be true or false, while in practice under guidance of *similia* the premise is, I believe, a law of nature. In any given empirical practice the reasoning process is inductive.

3d. Any given practice under guidance of *similia* should, I think, involve a definite conception of the *immediate* end sought in the practice. I shall dwell a moment upon this thought.

I presume that some men have practised under guidance of *similia* without a definite conception of the *immediate* end sought—perhaps with so vague a conception of an end, either immediate or remote, as is expressed in the words the *betterment of the patient's condition*. We

¹⁵ I say *drug (or drugs)*. Given the effects by which, in a particular case, disease is known: by some of those effects one drug may be indicated as homœopathic; by other of those effects, another drug; and by the same disease effects different drugs may be indicated as in different degrees homœopathic, in which case the more homœopathic drug is to be preferred to the less homœopathic.

have seen that in empirical practice the end sought may be immediate or remote, and the conception of that end either definite or vague; but that to rational practice is necessary a definite conception of the *immediate* end sought. A perfectly fair question from a physician who is not a homœopathist to a homœopathist who gladly adopts a given rational practice, and who on occasion resorts to empiricism is: If *similia* is law, why do you practice anything else than homœopathy? Assuming that the inquirer really wants to know something about homœopathy, and that it really seems to him inconsistent that the homœopathist should practice anything else than homœopathy, you may, I think, do him an immense service by, among other things, showing him *what* cure *similia* is the law of, and that it is the law of nothing else—*by showing him in what respect the immediate end sought in the practice of homœopathy differs from the immediate end sought in any given rational practice.* Incidentally I remark that an understanding upon this point might, I think, immensely facilitate the establishment of more useful relations between physicians who are homœopathists and physicians who are not homœopathists.

At the beginning of this lecture I said we should recur to the thought that it does not often occur, if ever it does, that a given practice is wholly empirical, wholly rational, or wholly under guidance of law. Your choice of a particular drug may be primarily based upon a principle of rational practice, or upon *similia*, and that choice may be empirically confirmed by a consideration solely of past experience in practice; or your choice of a particular drug may be primarily empirical, and that choice confirmed by considerations which seem to afford for the use of the drug in the circumstances a basis in rational practice, or by considerations which seem to show that the drug is more or less homœopathic to the disease from which your patient is suffering. In this connection I cannot too forcibly urge upon you the importance of keeping medical science *pure*. Never attempt to wrench the facts of science into accommodation with preconceived notions. To me it seems clear that an immense deal of error in our records of *Materia Medica Pura* is due to neglect of caution such as I now urge upon you. *Materia Medica Pura* is a science, and as such should be developed in a purely scientific spirit without any immediate regard whatever to the therapeutic use of facts in that science.

Though we may hope to some day discover a law of dosage, no such law is at present known; wherefore, in respect to dosage, no practice is at present under guidance of law. Empirical and rational considerations may both be brought to bear upon the question of dosage.

Materia Medica, the Pure Science of Drugs, the only immediate object of which is Knowledge.

Medicines physically <i>e.g.</i> : Demulcents. Lubricants. ¹⁷	Protectives { plasters, salves, ingesta or injecta. 17	Mercury <i>en masse</i> to overcome intestinal obstruction. ^{17, 18}	Mucuna, as anthelmintic. ¹⁸	Medicines chemically <i>e.g.</i> : Acids or alkalies <i>as such</i> , Neutralizers (chemically) of ptomaines, etc. ¹⁹ Caustics. ¹⁷	Dynamic parasiticides and germicides.	Food medicines. Stimulants.	A part of Materia Medica Pura. ²⁰	The whole of Materia Medica Pura.	Act immediately upon tissues, secretions, or excretions of patient or upon a proximate cause of disease.

Therapeutics, the Art of Using Drugs, the only not incidental object of which is to benefit patients.

Empiricism.	Haphazard empiricism [we discard]: It ignores any pure science of drugs; it ignores any pure science of disease beyond a recognition of disease in general as distinguished from health.	Legitimate empiricism: It is characterized by the ignoring of any proper distinction between the pure science of drugs and the art of using drugs; it presupposes something, at least, of the pure science of disease; it involves an induction from an <i>a posteriori</i> basis.	Rational Practice: It presupposes a knowledge of <i>part</i> of the pure science of drugs and of <i>part</i> of the pure science of disease; progress in each of these sciences must precede progress in the practice as a whole; this practice involves a deduction (which may be logical or may be illogical); the premise upon which the deduction is based is a <i>priori</i> and may be true or may be false.	Practice Under Guidance of Law.	<i>Contraria</i> (?) ²¹	It presupposes a knowledge of the pure science of disease <i>as known in effects</i> and of the pure science of Materia Medica Pura; progress in each of these sciences must precede progress in the practice of homeopathy as a whole; this practice involves a deduction; the premise upon which this deduction is based is <i>similia</i> , which we believe to be a law of nature.

* Notes to this page will be found on following page.

¹⁶ The dotted lines connect that part of drug science with the method of practice in the foundation of which it is. Observe that no dotted line connects the science of drugs with the art of legitimate empiricism. ¹⁷ These agents are perhaps not, properly speaking, medicine. ¹⁸ These old-time practices may serve as illustrations, though I am not aware that any physician would to-day adopt either of them. They were rational practices, but have been discarded, as has many another rational practice. Perhaps the trouble with the mercury practice was that it was more apt to do incidental harm than to effect the intended good; and the trouble with the mucuna practice, that the drug *spiculæ*, when moistened in the intestine, no longer possessed those physical properties for the sake of which mucuna was given. ¹⁹ Perhaps it would be premature to conclude that no useful practice is possible with neutralizers (chemically) of ptomaines. ²⁰ The anodyne effect of morphine and the mydriatic effect of atropine are, for instance, facts of *Materia Medica Pura* which rational practice can utilize; but it does not occur to me what use (excepting as a warning not to give too much of it) rational practice can make of, for instance, the fact that a given drug can effect a fatty degeneration in the liver, heart and kidneys, or an inflammation of the kidneys. Among the facts of *Materia Medica Pura* seem to be indefinitely many drug effects (subjective or objective), of which rational practice can make no use whatever (excepting as warnings in administering drugs). ²¹ I think it doubtful whether *contraria* is a law at all; and whether there is, other than *similia*, any law of *therapeutics* as distinguished from *hygiene*, though, of course, no one can say that there is not, unless he defines *therapeutics* as synonymous with the practice of homœopathy. ²² The question might arise: Is not homœopathy a part of rational practice? No, it is not, consistently with the definitions in this lecture. The immediate object of a *rational practice* with a drug as known in *Materia Medica Pura* is to produce in the patient a definite pathogenetic effect; the immediate object in a *practice of homœopathy* is to so modify the quality of vital processes and their effects, that, whereas these processes and effects were abnormal, they shall become normal (or approximately so), and that as a direct result (not an indirect) of the medicine used.

